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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,298	01/30/2002	Yutaka Yokoyama	070639-0138	6411

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WASHINGTON, DC 20007

EXAMINER	
LEE, RICHARD J	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/058,298	YOKOYAMA, YUTAKA	
	Examiner	Art Unit	
	Richard Lee	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/30/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because:

(a) form and legal phraseology often used in patent claims, such as "means" appearing at line 5 of the Abstract should be avoided; and

(b) form and legal phraseology often used in patent claims, such as "said" as shown at lines 8, 10, 16 (twice), 17, and 21, respectively, in the Abstract should be avoided. Correction is required. See MPEP § 608.01(b).

3. Figures 25 and 26 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. Claims 1-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For examples:

(1) claim 1, line 10, "allocated" should be changed to "pre-allocated" in order to provide proper antecedent basis for the same as specified at line 8;

(2) claim 1, line 17, "said code" shows no clear antecedent basis;

(3) claim 3, lines 2-3, "said means for predicting complexity degrees of said images" shows no clear antecedent basis;

(4) claim 4, lines 3-4, "said means for observing said characteristics" shows no clear antecedent basis;

(5) claim 4, line 6, "said generated coded quantity" shows no clear antecedent basis;

(6) claim 5, line 2, "said means for observing said characteristics" shows no clear antecedent basis;

(7) claim 6, line 4, claim 7, line 4, "said means for observing complexity degrees" shows no clear antecedent basis, respectively;

(8) claim 8, line 4, "said means for observing said complexity degrees" shows no clear antecedent basis;

(9) claim 8, line 4, "said means for observing said complexity degrees" shows no clear antecedent basis;

(10) claim 9, line 2, "said means for predicting complexity degrees" shows no clear antecedent basis;

(11) claim 10, line 3, claim 11, line 3, claim 21, line 3, claim 22, line 3, claim 32, line 3, claim 33, line 3, claim 43, line 3, claim 44, line 3, the particular claim to "MPEG 1 or MPEG 2", respectively, is indefinite because there are many versions of the MPEG recommendations and the recommends are continuously updated. The scope of the claim limitations cannot change over time, and unless the applicant provides the specific dates for the respective MPEG recommendations in the remarks section of a response to this Office Action or a copy of the MPEG recommendations are provided, the claims are considered indefinite;

(12) claim 11, lines 3-4, "said combined interval fixes" shows no clear antecedent basis;

(13) claim 12, line 23, "said code" shows no clear antecedent basis;

(14) claim 15, lines 3-4, "said means for observing said characteristics" shows no clear antecedent basis;

(15) claim 15, line 6, "said generated code quantity" shows no clear antecedent basis;

(16) claim 16, line 2, "said means for observing said characteristics" shows no clear antecedent basis;

(17) claim 17, line 4, claim 18, line 4, "said means for observing complexity degrees" shows no clear antecedent basis, respectively;

(18) claim 19, line 4, "Sid means for observing said complexity degrees" shows no clear antecedent basis;

(19) claim 23, lines 10-11, "allocated" should be changed to "pre-allocated" in order to provide proper antecedent basis for the same as specified at line 9;

(20) claim 23, line 16, "said code" shows no clear antecedent basis;

(21) claim 25, line 2, "said step of predicting said complexity degrees" shows no clear antecedent basis;

(22) claim 26, lines 5-6, "said generated code quantity" shows no clear antecedent basis;

(23) claim 27, line 7, "intra-frame" should be changed to "inter-frame" for clarity;

(24) claim 28, lines 4-5, "said step of observing said complexity degrees" shows no clear antecedent basis;

(25) claim 29, lines 4-5, claim 30, lines 4-5, "said step of observing said complexity degrees" shows no clear antecedent basis, respectively;

(26) claim 31, line 2, "said step of observing said complexity degrees" shows no clear antecedent basis;

(27) claim 33, lines 3-4, "said combined interval fixes" shows no clear antecedent basis;

(28) claim 34, line 13, "said first constant interval" shows no clear antecedent basis;

(29) claim 34, line 20, line 22, "said buffer" shows no clear antecedent basis, respectively;

(30) claim 34, line 21, "said code" shows no clear antecedent basis;

(31) claim 37, lines 5-6, "said generated code quantity" shows no clear antecedent basis;

(32) claim 38, line 2, "said step of observing said characteristics" shows no clear antecedent basis;

(33) claim 38, line 7, "intra-frame" should be changed to "inter-frame" for clarity;

(34) claim 39, lines 4-5, claim 40, lines 4-5, claim 41, lines 4-5, claim 42, line 2, "said step of observing said complexity degrees" shows no clear antecedent basis, respectively;

(35) claim 45, line 15, "said code" shows no clear antecedent basis;

(36) claim 46, lines 10-11, line 13, "said first constant interval" shows no clear antecedent basis, respectively; and

(37) claim 46, line 21, "said code" shows no clear antecedent basis.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5, 23-27, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato et al (6,151,360).

Kato et al discloses a method for encoding video signal using statistical information as shown in Figures 3, 10, 11, and 13, and the same moving image coding device and method that makes a compression and coding for moving images, and program for causing an information processing device as claimed in claims 1-5, 23-27, and 45, the image coding device comprising the same means (i.e., 61, 62 of Figure 3, see column 4, lines 10-31) for analyzing images, which exist in a constant interval, to observe characteristics of each image; based on the observed characteristics, means (see column 4, lines 10-31) for estimating complexity degrees of the images; means (i.e., 32 of Figure 3, see column 7, lines 16-35) for pre-allocating code quantity to the constant interval, and computing target code quantity with which the allocated code quantity is assigned to each image for all images within the constant interval based on the estimated complexity degrees; a buffer (i.e., 49 of Figure 3) which is accumulating codes that are generated as a result of having coded the images; when the computed target code quantity is assigned to each of the images, means (i.e., 33, 49 of Figure 3, see column 10, lines 3-38) for calculating a

transition of occupancy in the buffer of the code to regulate the target code quantity so that said buffer does not give rise to an overflow or an underflow; means (i.e., 46, 47 of Figure 3) for making a compression and coding for the images according to the regulated target code quantity; wherein the means for estimating complexity degrees of the images is configured so as to estimate complexity degrees of the images, based on statistics of the analyzed images (see column 4, lines 10-31); wherein the means for predicting complexity degrees of the images is configured so as to predict complexity degrees of the images, based on the complexity degrees of the images that were already analyzed (see M, L, V, R of Figure 3, column 4, lines 10-31); wherein, in coding the images, which were input, with a predetermined coding method (see Figure 3), the means for observing said characteristics is configured so as to observe code quantity, which are generated in coding the images, or the generated code quantity, and a value of a quantization scale used (see column 3, line 52 to column 5); and wherein the means for observing said characteristics is configured so that in an event of making an intra-frame coding for said images that were input (i.e., 14, 61 of Figure 3), a correlation is observed between neighboring pixels within a frame of said images (see column 4, lines 10-31); and in an event of making an inter-frame predictive coding for said images that were input (i.e., 14, 62 of Figure 3), inter-frame prediction error quantity of said images that were input is observed (see column 4, lines 10-31).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 6-8 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al as applied to claims 1-5, 23-27, and 45 in the above paragraph (6), and further in view of Kondo et al (6,625,322).

Kato et al disclose substantially the same moving image coding device and method that makes a compression and coding for moving images, and program for causing an information processing device as above, but does not particularly disclose wherein the moving image coding device includes means for reducing the size of the images that were input; wherein the means for observing complexity degrees is configured so that in an event of making an intra-frame coding for the images that were input, a correlation is observed between neighboring pixels within a frame of the reduced images, and in an event of making an inter-frame predictive coding for said images that were input, inter-frame prediction error quantity of said size reduced images is observed as claimed in claims 6-8 and 28-30. However, Kondo et al discloses an image coding apparatus as shown in Figure 21, and teaches the conventional use of a resolution converter 631 for reducing the size of input images before compression (see column 11, line 49 to column 12, line 57, column 19, line 63 to column 20, line 6). Therefore, it would have been obvious to one of ordinary skill in the art, having the Kato et al and Kondo et al references in front of him/her and the general knowledge of the image resolutions reductions within video compression systems, would have had no difficulty in providing image reduction system of Kondo et al within the moving image coder of Kato et al to thereby provide the reducing of the size of the images that were input, so that in an event of making an intra-frame coding for the images that were input, a correlation is observed between neighboring pixels within a frame of the reduced images, and in an event of making an inter-frame predictive coding for said images that were

input, inter-frame prediction error quantity of said size reduced images is observed for the same well known reduction of resolution of input video signal to continuously allocate a variable number of bits in accordance with the coding complexity and reduction of block and mosquito noise so that image quality is improved purposes as claimed.

9. Claims 9-16, 20-22, 31-38, 42-44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al as applied to claims 1-5, 23-27, and 45 in the above paragraph (6), and further in view of Wang et al (6,167,084).

Kato et al disclose substantially the same moving image coding device and method that makes a compression and coding for moving images, and program for causing an information processing device as above, further including the constant and combined interval fixes an interval length of a GOP, and is a multiple of N (Integer) of the interval length of said GOP (see Figure 11 of Kato et al, column 13, lines 28-51); means for analyzing images, which exist in a first constant/predetermined interval, to observe characteristics of each image, and based on the observed characteristics, means for estimating complexity degrees of the images (i.e., 61, 62 of Figure 3 and see column 4, lines 10-31 of Kato et al);

Kato et al does not particularly disclose though, the followings:

(a) wherein the means for predicting complexity degrees is configured so as to predict complexity degrees for each picture type, and wherein, in coding said images input by use of an image coding technique that is applied in MPEG1 or MPEG2 as claimed in claims 9-11, 20-22, 31-33, and 42-44; and

(b) means for predicting the complexity degrees of the images that exist in a second constant interval that succeeds the first constant/predetermined interval; means for allocating

code quantity to a combined interval in which said first constant interval and said second constant interval were combined, based on the estimated complexity degrees and the predicted complexity degrees, to compute target code quantity with which said allocated code quantity is assigned to each image for all images within said combined interval as claimed in claims 12, 34, and 46.

Regarding (a) and (b), Wang et al discloses a dynamic bit allocation for statistical multiplexing of compressed and uncompressed digital video signals as shown in Figure 6, and teaches the conventional use of predicting complexity degrees by configuring to predict complexity for each of I, B, and P picture types (see column 13, lines 20-67), coding of images using the MPEG 2 recommendation (see column 1, lines 15-24), the predicting of complexity degrees of images that exist in a second constant interval that succeeds the first constant interval (i.e., a super GOP contains N super frames, wherein each of the N super frames represents a constant interval, and as such the N super frames represents the first and second constant interval as claimed, see column 11, lines 10-59), and means for allocating code quantity to a combined interval in which said first constant interval and said second constant interval were combined, based on the estimated complexity degrees and the predicted complexity degrees, to compute target code quantity with which said allocated code quantity is assigned to each image for all images within said combined interval (i.e., a total number of bits generated for all super frames in a super GOP represents the allocated code quantity to a combined interval in which the first and second constant interval were combined, and the target number of bits T as computed represents the target code quantity with which the allocated code quantity is assigned to each image for all images within the combined interval, see column 11, lines 36-59). Therefore, it

would have been obvious to one of ordinary skill in the art, having the Kato et al and Wang et al references in front of him/her and the general knowledge of MPEG video compressions, would have had no difficulty in providing the prediction complexity degrees for each picture type, allocation of code quantity to a combined interval in which first and second constant intervals were combined based on estimated complexity degrees and predicted complexity degrees to compute a target code quantity within an MPEG 2 video compression system as taught by Wang et al all as part of the moving image coding system as shown in Figure 3 of Kato et al for the same well known MPEG compliant and target code quantity regulation control to thereby prevent buffer underflow and overflow purposes as claimed.

10. Claims 17-19 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al and Wang et al as applied to claims 1-5, 9-16, 20-27, 31-38, and 42-46 in the above paragraphs (6) and (9), and further in view of Kondo et al (6,625,322)

The combination of Kato et al and Wang et al discloses substantially the same moving image coding device and method that makes a compression and coding for moving images, and program for causing an information processing device as above, but does not particularly disclose wherein the moving image coding device includes means for reducing the size of the images that were input; wherein the means for observing complexity degrees is configured so that in an event of making an intra-frame coding for the images that were input, a correlation is observed between neighboring pixels within a frame of the reduced images, and in an event of making an inter-frame predictive coding for said images that were input, inter-frame prediction error quantity of said size reduced images is observed as claimed in claims 17-19 and 39-41. However, Kondo et al discloses an image coding apparatus as shown in Figure 21, and teaches

the conventional use of a resolution converter 631 for reducing the size of input images before compression (see column 11, line 49 to column 12, line 57, column 19, line 63 to column 20, line 6). Therefore, it would have been obvious to one of ordinary skill in the art, having the Kato et al, Wang et al, and Kondo et al references in front of him/her and the general knowledge of the image resolutions reductions within video compression systems, would have had no difficulty in providing image reduction system of Kondo et al within the moving image coder of Kato to thereby provide the reducing of the size of the images that were input, so that in an event of making an intra-frame coding for the images that were input, a correlation is observed between neighboring pixels within a frame of the reduced images, and in an event of making an inter-frame predictive coding for said images that were input, inter-frame prediction error quantity of said size reduced images is observed for the same well known reduction of resolution of input video signal to continuously allocate a variable number of bits in accordance with the coding complexity and reduction of block and mosquito noise so that image quality is improved purposes as claimed.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mihara, Alexandre et al, Jeng et al, Lu et al, Morita et al, Ducloux et al discloses various types of video encoders.

12. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

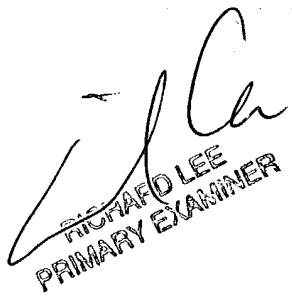
(703) 872-9314, (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.



Richard Lee/rl

10/15/04